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10/734,585	12/15/2003	Michael Bock	EFFERT-1	1385

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ART UNIT	**PAPER NUMBER**
3737	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/734,585	BOCK ET AL.	
	Examiner	Art Unit	
	John F. Ramirez	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

In response to applicant's arguments to independent claims 1 and 9, that the reference Foo et al. fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies in that the expression "is added" involved gradient pulses (spatial coding gradient pulses and "additional" flow related gradient pulses) occur at the same time, are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant's arguments filed May 11, 2007 have been fully considered but are not persuasive in view of the new ground(s) of rejection. However, upon further consideration, the following new office action is provided in order to expedite the prosecution of this application.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear what are the steps limitations that applicant is trying to claim.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. There is lack of utility for the subject matter as claimed in claims 1 and 9.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-15 are rejected under 35 U.S.C. 101 because:

On October 26, 2005, the USPTO published Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility. See: (<http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf>).

This guidelines details a procedure for determining patent eligible subject matter. As to **claim 9-15**, the first step in this process is whether the claims fall within one of enumerated categories. In the immediate application, the claims are drawn to a process - a "process for locally-resolved imaging of the magnetic resonance behavior of atomic nuclei in a selected field of view in a body" - and meets this step. However, the

analysis does not end here. The next step is whether a judicial exception (abstract ideas, laws of nature, natural phenomenon) is provided in the claim. In the immediate application, **claims 9-15** clearly include one of the judicial exceptions in that "A process for locally-resolved imaging of the magnetic resonance behavior of atomic nuclei in a selected field of view in a body in which data from the field of view are obtained using a nuclear spin tomography device by which the body is exposed to high frequency and magnetic field gradient echo pulse sequences that are spatially coded in each direction of space and that produce magnetization in the body in a manner that the magnetization of a medium flowing in at least one direction in space is attenuated in the body by dephasing of the spins of the atomic nuclei in the medium and by an MR contrast medium being supplied to the body, wherein the gradient echo pulse sequences are generated in a manner that an additional gradient contribution in each direction in space in which the medium is flowing in the body occurs at the same time as and is added to the gradient echo pulse sequence needed for said spatial coding in each direction of space without influencing said space coding, wherein said respective gradient echo pulse sequence has a gradient moment of the first order, M_1, which is maximized by setting the gradient field intensity and the slew rate to a respective maximum value, and said gradient echo pulse sequences needed for said spatial coding have a gradient zero order moment, M_0, which is essentially unchanged by said additional gradient contribution" are nothing more than abstract ideas, and **claims 1-8** are directed to an apparatus including one of the judicial exceptions in that "a nuclear spin tomography device capable of obtaining data for locally-resolved imaging of the magnetic resonance

behavior of atomic nuclei in a selected field of view in a body in which data from the field of view are obtained using a nuclear spin tomography device by which the body is exposed to high frequency and magnetic field gradient echo pulse sequences that are spatially coded in each direction of space and that produce magnetization in the body in a manner that the magnetization of a medium flowing in at least one direction in space is attenuated in the body by dephasing of the spins of the atomic nuclei in the medium and by an MR contrast medium being supplied to the body, wherein the gradient echo pulse sequences are generated in a manner that an additional gradient contribution in each direction in space in which the medium is flowing in the body occurs at the same time as and is added to the gradient echo pulse sequence needed for said spatial coding in each direction of space without influencing said space coding, wherein said respective gradient echo pulse sequence has a gradient moment of the first order, M_1, which is maximized by setting the gradient field intensity and the slew rate to a respective maximum value, and said gradient echo pulse sequences needed for said spatial coding have a gradient zero order moment, M_0, which is essentially unchanged by said additional gradient contribution", and an "MR contrast medium that is taken up by the body" are nothing more than abstract ideas. While abstract ideas alone are not eligible, the claim as a whole must be analyzed to determine whether it is for a particular application of the abstract idea. For claims including such excluded subject matter to be eligible, the claim must be for a practical application of the abstract idea, law of nature, or natural phenomena. To satisfy the requirement of a practical application, the claimed invention must: (1) transform an article or physical object to a different state or thing; if

no transformation, then (2) the claimed invention must produce a useful, concrete, and tangible result.

Regarding (1) above, the claims do not provide a transformation or reduction of an article to a different state or thing. Grouping equivalent dipoles based on predetermined criterion and solving inverse problems clearly do not transform an article or physical object to a different state or thing. Accordingly, one must then consider whether the claimed invention produces a useful, concrete, and tangible result.

(1) Useful Result

For an invention to be "useful" it must satisfy the utility requirement of section 101. The USPTO's official interpretation of the utility requirement provides that the utility of the invention has to be (i) specific, (ii) substantial and (iii) credible. See MPEP 2107. It can be argued that the claim does not provide a useful result in that the claim does not actually solve a problem. It does not appear to be specific as to how the problem is solved and, if solved, it is not specific as to the use of this solution.

(2) Tangible Result

The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the tangible requirement does require that the claim must recite more than a 101 judicial exception, in that the process claim must set forth a practical application of that 101 judicial exception to produce a real world result.

Regarding the tangible result requirement, the claim clearly does not provide a practical application. The problem, even if solved, is not practically applied to produce a real world result. For example, once the problem is solved, how is this then applied?

(3) Concrete Result

Another consideration is whether the invention produces a "concrete" result. Usually, this question arises when a result cannot be assured. In other words, the process must have a result that can be substantially repeatable or the process must substantially produce the same result again. Resolving this question is dependent on the level of skill in the art. For example, if the claimed invention is for a process which requires a particular skill, to determine whether the process is substantially repeatable will necessarily require a determination of the level of skill of the ordinary skilled artisan.

Regarding the concrete result requirement, the claim does not provide a result that can be assured in that the result can not be substantially repeatable and the process can not substantially produce the same result again.

In view of the above analysis, applicant's **claims 1 and 9** are an apparatus and a process respectively, which includes a judicial exception therein. Upon review of the claim as a whole, there is no transformation nor does the claims produce a useful, concrete, and tangible result. Accordingly, the claims are non-statutory.

In relation to **claims 10-15**, depend from claim 9 respectively, and as such, include the various steps thereof. As discussed above, claim 9 is a method that

provides no physical transformation and there is no practical application, which is useful, concrete and tangible.

In relation to **claims 2-8** are an apparatus which includes a judicial exception therein. Upon review of the claim as a whole, there is no transformation nor does the claim produce a useful, concrete, and tangible result. Accordingly, the claims are non-statutory.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined

under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

1. Claims 1, 4, 6-9, 12 and 14-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Foo et al. (US 6,408,201).

Concerning to Claims 1-15, Foo et al. discloses a nuclear spin tomography device to obtain data for locally-resolved imaging of the magnetic resonance behavior of the atomic nuclei in a selected field of view in a body (see abstract, col. 4, lines 13-33, col. 1 lines 59-67, col. 2, lines 1-23) the device being made and programmed in a manner that the body can be exposed by the device to high frequency and magnetic field gradient echo pulse sequences that produce magnetization in a body in a manner that the magnetization of a medium that is flowing in at least one direction in space in the body can be attenuated by dephasing the spins of the atomic nuclei in the medium (see abstract, col. 2, lines 24-52), wherein the gradient echo pulse sequences are generated in a manner that an additional gradient contribution in each direction in spatial in which the medium is flowing in the body occurs at the same time as and is added to the gradient echo pulse sequence needed for spatial coding in each direction of space without influencing the space coding (col. 3, lines 31-50), wherein said respective gradient echo pulse sequence has a gradient moment of the first order M1, which is maximized by setting the gradient filed intensity and the slew rate to a respective maximum value (col. 3, line 31- col. 4, line 60), and said gradient echo pulse sequences needed for said spatial coding have a gradient zero order moment, M0, which is essentially unchanged by said additional gradient contribution, and an MR

contrast medium that is taken up by the body, wherein gradient echo pulse sequences can be produced in the respective directions in space by inserting the flow dephasing gradient pulses into flow-compensated imaging gradient echo pulse sequences (col. 3, lines 31-49), wherein the device is a static magnet, gradient devices for producing gradient pulses in three directions in space that are orthogonal to one another (col. 7, lines 60-67), a transmission device for producing high frequency signals, a receiving device for high frequency signals, a device for triggering gradient devices and the transmission device, an evaluation device, and a display device (Fig. 1), wherein the MR contrast medium can be administered intravenously to a human or animal body (col. 7, lines 24-34), wherein the MR contrast medium is lymph-passable and/or plaque-passable (Abstract).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2,3, 5,10,11 and13 are rejected under 35 U.S.C. 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Foo et al. (US 6,408,201).

With respect to claims 2,3,5,10,11 and 13, Foo et al. discloses magnetization of the medium flowing in at least one direction in space in the body can be attenuated by dephasing of the spins by gradient moments of order i $M_i(t)$ being maximized in this direction in space according to the following relation:

$$M_i(t)=\gamma \cdot \int_0^t G(t').t'^i dt'$$

whereby, i is an integer greater than zero, γ is the gyromagnetic ratio of the atomic nuclei, G (t') is a time-dependent gradient field intensity in this direction in space and t is the time interval that has passed since the emission of a high frequency pulse for excitation of the atomic nuclei (col. 3, lines 31-49; col. 9 line 19 – col. 12, line 50), wherein the magnetization of the medium flowing in at least one direction in space in the body can be attenuated by dephasing of the spins in that gradient moments of the first order $M_1(t)$ are maximized in this direction in space according to the following relation (col. 3, lines 31-49; col. 9 line 19 – col. 12, line 50):

$$M_1(t) = \gamma \cdot \int_0^t G(t') \cdot t'dt'$$

wherein M_1 satisfies the following relation: $M_1 (t; Gbipolar, tramp, tplateau, tsep) = \gamma \bullet Gbipolar \& (tramp + tplateau) \bullet (2tramp + tplateau + tsep)$ (Figure 4, col. 7, line 61 – col. 9, line 18). In the alternative, it would have been an obvious design choice for one of

ordinary skill in the art at the time for the invention to have expected Foo et al. system and applicant's invention, to perform equally well. Furthermore, it would have been prima facie obvious to one of ordinary skill in the art to have modified the system disclosed by Foo et al., to obtain the invention as specified in claims 2, 3 and 5 because such a modification would have considered a mere design consideration which fails to patentably distinguish over the prior art of Foo et al.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Ramirez whose telephone number is (571) 272-8685. The examiner can normally be reached on (Mon-Fri) 7:30 - 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JFR

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